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| EXAMINER MANOJARAN, MUTHUSWAMY GANAPATHY | | | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/567,574

Applicant(s)

QUICK ET AL.

Examiner

MUTHUSWAMY MANOHARAN

Art Unit

2617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 January 1943.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-43 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 1/10/2011.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4/22/2010 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4, 10, 14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brederveld et al. (hereinafter Brederveld) (US 5898679) in view of King (US 2009/0154390).

Regarding **claim 1**, Brederveld teaches a radio communication system comprising a first transceiver (source end station, abstract), a second transceiver (destination end station, abstract) and a repeater (relay, abstract), the method comprising:

upon receiving data from one of either the first or second transceivers, transmitting by the repeater a repeat flag to cause the transceivers to suspend further action and then transmitting by the repeater, the data received from the one of either the first or second transceivers ("R-BLEEP", reads on repeater flag, col. 6, line 27; "the AP could selectively repeat the message transmitted by MS 120, MS 120 and MS 121 could read on first and second transceivers; col. 5, lines 40-45).

Brederveld did not teach specifically transmitting an overall status to cause the transceivers to resume further action. However, King teaches in an analogous art transmitting an overall status to cause the transceivers to resume further action (ACK signal back to the original source of the wireless signal through the ...repeater, P[0044]). Therefore, it would be obvious to one of ordinary skill in the art at the time of invention to transmit an overall status to cause the transceivers to resume further action in order to complete the transaction efficiently.

Regarding **claim 4**, Brederveld teaches a method for transmitting and receiving data according to a frame for use in a network of devices comprising a first transceiver, a repeater, and at least one other transceiver, the method comprising: transmitting, by the first transceiver, data for each of the at least one other transceivers in a first time slot of the frame; transmitting by the repeater a repeat flag in a second time slot of the frame after the first time slot; and retransmitting by the repeater the data transmitted in the first time slot in a third time slot of the frame after the second time slot. (source end station transmits a message", col. 5, lines 34-35, "R-BLEEP", col. 5, line 55; col. 5, lines 54-57).

Brederveld did not teach specifically transmitting by the repeater, in a last time slot after the third time slot. However, King teaches in an analogous art transmitting by the repeater, in a last time slot after the third time slot(ACK signal back to the original source of the wireless signal through the ...repeater, P[0044]). Therefore, it would be obvious to one of ordinary skill in the art at the time of invention to transmit by the repeater, in a last time slot after the third time slot in order to complete the transaction efficiently.

Regarding **claim 10**, Brederveld teaches a radio communication system comprising a first transceiver, a second transceiver and a repeater, wherein upon receiving data from one of either the first or second transceivers, in a first time slot, the repeater transmits a repeater flag in a second time slot to cause the transceiver to suspend further action, and then in a third time slot transmits the data received in the first time slot ("R-BLEEP", reads on repeater flag, col. 6, line 27; "the AP could selectively repeat the message transmitted by MS 120, MS 120 and MS 121 could read on first and second transceivers; col. 5, lines 40-45).

Brederveld did not teach specifically transmits an overall status to all transceivers in a last time slot after the third time slot to cause the transceivers to resume further action. However, King teaches in an analogous art transmits an overall status to all transceivers in a last time slot after the third time slot to cause the transceivers to resume further action(ACK signal back to the original source of the wireless signal through the ...repeater, P[0044]). Therefore, it would be obvious to one of ordinary skill in the art at the time of invention to transmit an overall status to all transceivers in a last

time slot after the third time slot to cause the transceivers to resume further action in order to complete the transaction efficiently.

Regarding **claim 14**, Brederveld teaches a repeater for use in a radio communication system comprising at least two transceivers, wherein upon receiving data in a first time slot, the repeater transmits a repeat flag in a second time slot to cause the transceivers to suspend further action, and then transmits in a third time slot, data received in the first time slot ("R-BLEEP", reads on repeater flag, col. 6, line 27; "the AP could selectively repeat the message transmitted by MS 120, MS 120 and MS 121 could read on first and second transceivers; col. 5, lines 40-45; transmit an R-BLEEP to the source end station and then repeat the message to the destination end station, col. 6, lines 30-35).

Brederveld did not teach specifically transmits in a last time slot, after the third time slot, an overall status to cause the transceivers to resume further action. However, King teaches in an analogous art transmits in a last time slot, after the third time slot, an overall status to cause the transceivers to resume further action (ACK signal back to the original source of the wireless signal through the ...repeater, P[0044]). Therefore, it would be obvious to one of ordinary skill in the art at the time of invention to transmits in a last time slot, after the third time slot, an overall status to cause the transceivers to resume further action in order to complete the transaction efficiently.

Regarding **claim 16**, Brederveld teaches a transceiver for use in a radio communication system comprising at least one other transceiver and a repeater, the transceiver and the at least one other transceiver being separated from each other by a

distance greater than at least one of their respective transmitting ranges, in use, the repeater being disposed intermediate the transceiver and the at least one other transceiver, wherein upon receiving a repeat flag from the repeater, in a second time slot, the transceiver suspends further action until it receives from the repeater, in a third time slot, data that was originally transmitted by the at least one other transceiver in a first time slot, before the second time slot ("R-BLEEP", reads on repeater flag, col. 6, line 27; "the AP could selectively repeat the message transmitted by MS 120, MS 120 and MS 121 could read on first and second transceivers; col. 5, lines 40-45; transmit an R-BLEEP to the source end station and then repeat the message to the destination end station, col. 6, lines 30-35).

Brederveld did not teach specifically transmits an overall status from the repeater in a last time slot, after the third time slot, after which the transceiver resumes normal action. However, King teaches in an analogous art transmits an overall status from the repeater in a last time slot, after the third time slot, after which the transceiver resumes normal action (ACK signal back to the original source of the wireless signal through the ...repeater, P[0044]). Therefore, it would be obvious to one of ordinary skill in the art at the time of invention to transmits an overall status from the repeater in a last time slot, after the third time slot, after which the transceiver resumes normal action in order to complete the transaction efficiently.

Claims 2-3, 5, 11, 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brederveld et al. (hereinafter Brederveld) (US 5898679) in view of Fujii et al. (hereinafter Fujii) (US 2002/0106011).

Regarding **claim 2**, Bederveld teaches the first transceiver transmit an acknowledgement indicating the successful receipt of the data transmitted by the repeater ("if no bleep message is received the source end-station reports the status "NO TRANSFER" for the message", Col. 6, lines 49-50). Bederveld teaches the second transceivers transmit an acknowledgement indicating the successful or unsuccessful receipt of the data transmitted by the repeater (if the bridge relay does not detect an S-Bleep the relay determines that the destination end-station did not receive the message and sets the status relay the message to "REPEAT", col. 8, lines 35-38). Brederveld did not teach explicitly the method wherein transceivers transmit an acknowledgement indicating the successful or unsuccessful receipt of the data transmitted by the repeater. However, Fujii teaches in an analogous art wherein the transceivers transmit an acknowledgement indicating the successful or unsuccessful receipt of the data transmitted by the repeater (Figure 4). Therefore, it would be obvious to one of ordinary skill in the art at the time of invention to use a method wherein the first and second transceivers transmit an acknowledgement indicating the successful or unsuccessful receipt of the data transmitted by the repeater in order to provide confirmation so as to avoid retransmission.

Regarding **claim 3**, Brederveld teaches a method wherein upon receipt of the acknowledgements from each of the first and second transceivers, the repeater will transmit an overall status for the repeated transmission (report status of "no repeat", status of the message to "repeat", col. 8, lines 27-38)

Claim 5 is rejected for the same reason as set forth in claim 2.

Claim 15 is rejected for the same reason as set forth in claims 2 and 3.

Claims 11 and 17 are rejected for the same reason as set forth in claim 5.

Claims 6-9, 12-13 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brederveld et al. (hereinafter Brederveld) (US 5898679) in view of Fujii et al. (hereinafter Fujii) (US 2002/0106011) and Hwang et al. (hereinafter Hwang) (US 2003/0108013).

Regarding **claim 6**, the combination of Brederveld and Fujii teaches all the particulars of the claim except wherein the fourth time slot is divided into a first sub-time slot for indicating a positive acknowledgement and a second sub-time slot for indicating a negative acknowledge. However, Hwang teaches in an analogous art wherein the fourth time slot is divided into a first sub-time slot for indicating a positive acknowledgement and a second sub-time slot for indicating a negative acknowledge (ACK or NACK and CQI information in the three slots, which are subframes; Paragraph [0103])

Regarding **claim 7**, Brederveld teaches a method in which the first and third time slots are variable in length and the first and second sub-time slots are fixed in length (Brederveld: Figure 2; Fujii: Figure 1c).

Regarding **claim 8**, Fujii teaches a method according to claim 6, wherein the positive acknowledge includes the transmission of a specific coded value containing sufficient redundancy to allow it to be recovered in the presence of received errors, and the negative acknowledge includes the transmission of a specific coded value

containing sufficient redundancy to allow it to be recovered in the presence of received errors (Paragraph [0058, 0065]).

Regarding **claim 9**, Bredervald teaches method wherein the frame further comprising a fifth time slot for transmitting an overall status to the network (Col. 8, lines 27-38).

Claims 12-13 are rejected for the same reason as set forth in claims 6 and 9 respectively.

Claim 18 is rejected for the same reason as set forth in claim 6.

Claims 19, 27, 35 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Song et al. (hereinafter Song) (US 2004/0146013) in view of Scott et al. (hereinafter Scott) (US 5796738).

Regarding **claim 19**, Song teaches a method for use in a radio communications system comprising at least a first transceiver, a second transceiver and a repeater, such that upon receipt of a data transmission from the first transceiver, the repeater re-transmits the data transmission from the first transceiver, wherein upon receipt of a data transmission from the second transceiver before the repeater completely receives or retransmits the data transmission from the first transceiver
(Figures 1 and 2; the repeater receives uplink transmissions from station 1050 and retransmits them to the access point 1010; When both stations 1050 and access point 1010 transmit simultaneously, the collision is resolved as described above, P[0062]).

Song did not teach specifically the repeater transmits a data sequence instructing each transceiver to cease its respective transmission.

However, Scott teaches in an analogous art wherein the repeater transmits a data sequence instructing each transceiver to cease its respective transmission(col. 3, lines 50-60). Therefore, it would be obvious to one of ordinary skill in the art at the time of invention to have the repeater transmits a data sequence instructing each transceiver to cease its respective transmission in order to prevent resolve collision. These procedures are well known in the art.

Claims 27, 35 and 37 are also rejected for the same reason as set forth in claim 19.

Claims 20-26, 28-34, 36 and 38-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Song et al. (hereinafter Song) (US 2004/0146013) in view of Scott et al. (hereinafter Scott) (US 5796738) and Molle (US 5978383).

Regarding **claim 20**, the combination of Song and Scott teaches all the particulars of the claim except a method wherein the respective transmissions of the first and second transceivers are headed by a sequence of consecutive dominant bits. However, Molle teaches in an analogous art a method wherein the respective transmissions of the first and second transceivers are headed by a sequence of consecutive dominant bits (col. 9, lines 50-53). Therefore, it would be obvious to one of ordinary skill in the art at the time of invention to use a method wherein the respective transmissions of the first and second transceivers are headed by a sequence of consecutive dominant bits in order to control collision.

Regarding **claim 21**, Scott teaches a method wherein the data sequence transmitted by the repeater begins with a sequence of dominant bits (col. 3, lines 53).

Regarding **claim 22**, Scott teaches a method further comprising upon receiving the data sequence from the repeater, causing each transceiver to cease transmitting, each transceiver will delay for a period before attempting to repeat its original transmission (backoff procedure, waits a random period of time, col. 3, line 54).

Regarding **claim 23**, Scott teaches a method wherein the delay period is calculated by each transceiver by selecting a random number and scaling the random number according to the number of bits in its respective transmission (backoff procedure, waits a random period of time, col. 3, line 54).

Regarding **claim 24**, Scott teaches a method wherein if subsequent transmission retries still collide, subsequently calculated delay periods are increased (Scott: CSMA/CD; Molle: CSMA/CD, abstract).

Regarding **claim 25**, Scott teaches a method wherein after a predetermined number of unsuccessful retries, the transceiver ceases further transmission attempts (CSMA/CD, col. 1, line 24; col. 3, lines 58-60).

Regarding **claim 26**, Scott teaches a method wherein after ceasing further transmission attempts, the network alerts an operator that further transmission attempts have ceased (CSMA/CD, col. 1, line 24; col. 3, lines 58-60).

Claims 28-34 are rejected for the same reason as set forth in claims 20-26.

Claim 36 is rejected for the same reason as set forth in claim 20.

Claims 38-43 are rejected for the same reason as set forth in claims 21-26 respectively.

Response to Arguments

Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

Specification

The amendment to specification filed 4/22/2010 has not been entered because it does not conform to 37 CFR 1.125(b) and (c) because: the amendment that is submitted is not present on the filing date of the application and also not part of the original disclosure of the application.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MUTHUSWAMY MANOHARAN whose telephone number is (571)272-5515. The examiner can normally be reached on 6:30am-2:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, George Eng can be reached on 571-272-7495. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/George Eng/
Supervisory Patent Examiner, Art Unit 2617

/MUTHUSWAMY MANOHARAN/
Examiner, Art Unit 2617